

1. A substantially hydrophobic battery electrode comprising:
a plurality of particles, each of said particles having an
exterior surface area;

said plurality of particles formed into an electrode;

5 each of said particles electrically communicating with
adjacent particles forming said electrode; and

each of said particles having a coating covering
substantially all of said exterior surface area, said coating
comprised of coating material, said coating material being
10 substantially hydrophobic.

2. The substantially hydrophobic battery electrode of claim 1
wherein said coating material comprises a substantially
hydrophobic polymer.

15 3. The substantially hydrophobic battery electrode of claim 2
wherein said substantially hydrophobic polymer is comprised of
one or a combination of substantially hydrophobic polymers from a
group of substantially hydrophobic polymers consisting of EPDM
20 and PVDF.

4. The substantially hydrophobic battery electrode of claim 1
additionally comprising:

said coating material also containing an electrically
25 conductive additive.

5. The substantially hydrophobic battery electrode of claim 2 additionally comprising:

said coating material also containing an electrically conductive additive.

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6. The substantially hydrophobic battery electrode of claim 3 additionally comprising:

said coating material also containing an electrically conductive additive.

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7. The substantially hydrophobic battery electrode of claim 6 additionally comprising:

said electrically conductive additive being one or a combination of electrically conductive additives from a group of electrically conductive additives including aluminum and carbon.

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8. The substantially hydrophobic battery electrode of claim 1 additionally comprising:

said coating material also containing ionically conductive additive therein.

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9. The substantially hydrophobic battery electrode of claim 2 additionally comprising:

said coating material also containing ionically conductive additive therein.

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10. The substantially hydrophobic battery electrode of claim 4 additionally comprising:

said coating material also containing ionically conductive additive therein.

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11. The substantially hydrophobic battery electrode of claim 5 additionally comprising:

said coating material also containing ionically conductive additive therein.

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12. The substantially hydrophobic battery electrode of claim 6 additionally comprising:

said coating material also containing ionically conductive additive therein.

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13. The substantially hydrophobic battery electrode of claim 8 additionally comprising:

said ionically conductive additive being one or a combination of ionic conductives from a group of lithium salts consisting of, LiF, Li₂CO₃, LiNO₂, LiBF₄, LIBOB, and LITFSI.

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14. The substantially hydrophobic battery electrode of claim 9 additionally comprising:

said ionically conductive additives being one or a combination of ionically conductive additives from a group of lithium salts consisting of LiF, Li₂CO₃, LiNO₂, LiBF₄, LIBOB, and LITFSI.

15. The substantially hydrophobic battery electrode of claim 10 additionally comprising:

said ionically conductive additives being one or a combination of ionically conductive additives from a group of lithium salts consisting of LiF, Li₂CO₃, LiNO₂, LiBF₄, LIBOB, and LITFSI.

16. The substantially hydrophobic battery electrode of claim 11 additionally comprising:

said ionically conductive additives being one or a combination of ionically conductive additives from a group of lithium salts consisting of LiF, Li₂CO₃, LiNO₂, LiBF₄, LIBOB, and LITFSI.

17. The substantially hydrophobic battery electrode of claim 12 additionally comprising:

said ionically conductive additives being one or a combination of ionically conductive additives from a group of

lithium salts consisting of LiF, Li₂CO₃, LiNO₂, LiBF₄, LIBOB, and LITFSI.

18. The substantially hydrophobic battery electrode of claim 1
5 additionally comprising:

said coating material covering said exterior surface area
being aluminum.

19. A method of rendering particles of active materials used to
10 form a battery electrode substantially hydrophobic, comprising
the steps of:

choosing active material for the formation of a battery
electrode therefrom; and

coating individual particles of said active material with a
15 substantially hydrophobic coating.

20. A method of rendering particles of active materials used to
form a battery electrode substantially hydrophobic, comprising
the steps of:

20 choosing active material for the formation of a battery
electrode therefrom;

depositing individual particles of said active material in a
solvent containing a substantially hydrophobic coating material;

allowing said coating material to adhere to the
25 substantially the entire exterior surface of said individual

particles; and

allowing said solvent to evaporate thereby leaving said coating material adhered to said individual particles and rendering said particles substantially hydrophobic.

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21. The method of claim 19 wherein said substantially hydrophobic coating is comprised of aluminum and deposited on said particles by vapor coating.

10 22. The method of claim 20 additionally comprising the steps of:
mixing ionically conductive materials in said solvent; and
allowing said ionically conductive materials to adhere to
said exterior surface as a component of said coating material.

15 23. The method of claim 22 additionally comprising the steps of:
choosing one or a combination of said ionically conductive
materials to be mixed in said solvent from a group of lithium
salts consisting of LiF, Li_2CO_3 , LiNO_2 , LiBF_4 , LIBOB, and LITFSI.

20 24. The method of claim 20 additionally comprising the steps of:
mixing electrically conductive material in said solvent; and
allowing said electrically conductive material to adhere to
said exterior surface as a component of said coating material.

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25. The method of claim 22 additionally comprising the steps of:
mixing electrically conductive material in said solvent; and
allowing said electrically conductive material to adhere to
said exterior surface as a component of said coating material.

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26. The substantially hydrophobic battery electrode of claim 1
wherein said coating covering said exterior surface area of each
of said particles has a ratio of coating weight to particle
weight between 0.1% and 20%.

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27. The method of rendering particles of active materials of
claim 19 wherein said substantially hydrophobic coating is coated
on the active particles in a ratio of coating weight to active
particle weight between 0.1% and 20%.

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28. The method of rendering particles of active materials of
claim 19 wherein said substantially hydrophobic coating is coated
on the active particles in a ratio of coating weight to active
particle weight between 0.1% and 5%.

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29. A method of rendering particles of active materials used to
form a battery electrode substantially hydrophobic, comprising
the steps of:

choosing active material for the formation of a battery

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electrode therefrom;

spraying the individual particles of said active material with a solvent containing a substantially hydrophobic coating material;

allowing said coating material to adhere to the exterior surface of said individual particles; and

allowing said solvent to evaporate thereby leaving said coating material adhered to said individual particles and rendering said particles substantially hydrophobic.

30. The method of claim 29 wherein said substantially hydrophobic coating material also contains one or a combination of additives from a group of additives consisting of electrically conductive additives and ionically conductive additives.

31. The method of claim 30 wherein said ionically conductive additives include one or a combination of ionically conductive additives from a group of ionically conductive additives consisting of LiF, Li_2CO_3 , LiNO_2 , LiBF_4 , LIBOB, and LITFSI.